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10/810,195	03/25/2004	Michael P. Galligan	4339/4358I (CON)	9678

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EXAMINER	
NGUYEN, NGOC YEN M	
ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
01/07/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/810,195	GALLIGAN ET AL.	
	Examiner	Art Unit	
	Ngoc-Yen M. Nguyen	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-10,20,21,36-39 and 46-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-10,20,21,36-39 and 46-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-10, 20-21, 36-39, 46-50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no sufficient support for "a *longitudinal* bend or curve within an exhaust manifold or exhaust flow pipe" as required in the instant claim 36. Applicants have pointed out support for this limitation at page 17, line 23 to page 18, line 19 and Figures 7A-C, however, on pages 17 and 18, there is no mention of "longitudinal bend or curve". In Figure 7A-C, only the outer structure of the tubular catalyst member is shown, there is no disclosure that the catalyst member is actually positioned in a curve or bend of the tubular catalyst member.

In this office action, based on the disclosure on page 18 of the specification that the substrate can be "reshaped by being corrugated and rolled with a flat foil to provide a corrugated foil honeycomb", "to compose a mesh", "reshaped by being curled into a cylindrical configuration", "reshaped into a corrugated sheet", "being compressed to

change its shape and/or density material", "rolled into a coiled configuration" (note paragraph bridging pages 17-18), any of these shaping actions is considered as “to conform to a longitudinal bend or curve” as required in the instant claim 36.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-5, 7-10, 21, 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorynin et al (5,204,302) in view of in view of Rondeau (4,027,367), optionally further in view of Ishida (4,455,281) and JP 08-319,824 (using EP 0 831,211 as an unofficial English translation).

Gorynin ‘302 invention relates to a multi-layered catalyst on a metal substrate for the catalytic conversion of gases, such as purification of exhaust gases of internal combustion engines (note column 1, lines 6-10).

Gorynin ‘302 discloses a catalyst comprising a metallic substrate; an adhesive sublayer diffusion bonded onto said substrate; and a catalytically active layer deposited on said sublayer and a porous layer deposited on said catalytically active layer (note claim 1). The adhesive sublayer is prepared from thermally reactive powders, such as those prepared from nickel and titanium, aluminum with at least one or more of Co, Cr, Mo, Ta, Nb, Ti or Ni or silicon with at least one or more of Ti, Nb, Cr, W, Co, Mo, Ni or

Ta (note column 2, lines 25-35). For the composition of the Ni alloy used, it would have been obvious to one of ordinary skill in the art to optimize such composition to obtain the best adhesive layer.

The adhesive layer in Gorynin is formed by plasma spraying. The thermally reactive powders are introduced into a plasma torch and an exothermic reaction is initiated in the torch. The exothermic powders impinge the substrate where the reaction continues. The heat generated in the reaction causes diffusion of the sub-layer into the substrate resulting in a diffusion bond and strong adhesion of the sublayer to the substrate (note column 3, lines 6-15). Thus, Gorynin '302 fairly teaches that the plasma spraying process is used to obtain a diffusion layer which improves the bonding between the two layers.

Gorynin '302 further discloses that a catalyst of NiAl sublayer, gamma-alumina catalytically active layer and gamma alumina/manganese oxide porous layer was assembled by corrugating a catalyst strip and rolling it into a cylinder (note Example, column 9, lines 64-67). The steps of "corrugating" and "rolling" as disclosed in Gorynin '303 are considered the same as "bending" as required in the instant claim 36 (note reason as stated in the 112, first paragraph rejection as stated above), and the cylinder as disclosed in Gorynin '302 is considered as having a "curve" because the cross section of the cylinder is a circle.

Optionally, JP '824 can be applied to teach an improved exhaust purifying apparatus for purifying exhaust gas discharged from an internal combustion engine (note claim 1). As shown in Figures 16A-16B, the catalysts are positioned in the curved

part of the exhaust pipe 5. JP '824 also teaches that it is known in the art to deposit a catalyst-bearing layers 102 on the inner and outer surface of a porous internal pipe 101 and the porous internal pipe is conformed to exhaust pipe 100 (note Figures 17-18). Furthermore, JP '824 fairly discloses that the chamber that holds the catalyst, for an internal combustion is conventionally in the form of a exhaust pipe with a bend or curve (note Figures 2, 16A-16B).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the corrugated and rolled into cylinder shape catalyst as described in Gorynin '302 in a chamber having the shape of a pipe with a bend or curve as suggested by JP '824 because such shape is conventional for exhaust apparatus used to treat exhaust gas from an internal combustion engines.

The difference is Gorynin '302 does not disclose the use of electric arc to form the adhesive layer.

The process limitation in claim 36 is noted, i.e. "carrier substrate having an anchor layer *disposed thereon by electric sprayer*". However, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

In any event, Rondeau '367 discloses a method of thermal spraying a substrate to deposit a self-bonding coating on such substrate, comprising supplying an electric arc thermal spray gun with a wire feed comprising an alloy of nickel and aluminum or

titanium, and using such electric arc thermal spray gun, spraying said wire feed onto such substrate to coat the same thereby to establish diffusion bond between such coating and such substrate to provide a self-bonding coating on such substrate (note claim 1). Rondeau '367 discloses that several types of thermal spraying guns are available including combustion flame spray guns, e.g., the oxy-fuel gas type, plasma arc spray guns and electric arc spray guns. Combustion flame spray guns require a source of fuel, such as acetylene, and oxygen and the temperature produced therein are usually relatively low and often incapable of spraying materials having melting points exceeding 5,000°F. Plasma arc spray guns are usually the most expensive type and they produce much higher temperatures than the combustion type, e.g. up to approximately 30,000°F. Furthermore, plasma arc spray gun require a source of inert gas, such as argon, for creation of the plasma, and the gas flow rate and electric power therefor require extremely accurate control for proper operation. On the other hand an electric arc spray gun simply requires a source of electric power and a supply of compressed air or other gas, as is well known, to atomize and to propel the melted material in the arc to the substrate or target (note column 1, lines 25-43).

In undertaking the method of Rondeau '367 a number of important advantages are realized over the prior art. Firstly, the process uses an electric arc spray gun, which is more economically operated than other thermal spray equipment. Second, the material to be sprayed is supplied as a wire, which is more convenient to use than powder. The wire may be thin strand all the way up to a relatively thick rod as long as it is suitable for spraying through an electric arc spray gun. Third, the wire is readily

formed as an alloy of the two primary materials nickel and aluminum or nickel and titanium. Fourth, the cohesive, adhesive and hardness attributes of the coating on an article formed by the method of the invention are generally equivalent to or better than corresponding attributes for a coating on an article sprayed with powder using other thermal spray devices (note paragraph bridging columns 2-3).

Rondeau '367 can be further applied to teach that the wire alloy comprises a minimum of 93% nickel, from 4 to 5.2% aluminum, from 0.25 to 1.00% Ti (note column 4, lines 15-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use electric arc spraying method, instead of plasma spraying, to form the adhesive layer in Gorynin '302, as suggested by Rondeau '367 because electric arc spraying method can form the same diffusion bond between the two layers but it would cost less plus the additional advantages as stated above.

Optionally, Ishida '281 can be applied as stated above to teach that it is known in the art to form an adhesive layer on a substrate of a catalyst by using electric arc spraying process before depositing the catalytic layer in order to form a catalyst that is highly resistant to peel off (i.e. better bonding) (note column 7, lines 62-67).

Claims 2-10, 20-21, 36-39, 46-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorynin '302 in view of Rondeau '367 and Ernest et al (4,451,441), optionally further in view of Ishida '281 and JP 08-319,824 (EP 081 211 can be used as an unofficial English translation).

Gorynin ‘302, Rondeau ‘367 are applied as stated above.

Ishida ‘281 can be optionally applied as stated above.

The difference not yet discussed is Gorynin ‘302 does not disclose a substrate with at least two regions of different substrate densities.

Ernest ‘441 discloses a method for removing carbon and lead particles from internal combustion engine exhaust gases by passing the gases through a coarse filter and then through a fine filter (note column 1, lines 29-45). The filters may comprise any material which is effective for trapping the particles in the gases (note column 1, lines 62-66). Preferably, the filters are unitary structures of relatively large size such as ceramic monoliths, metal wools or metal meshes (note column 2, lines 10-21). Ernest ‘441 further discloses that a catalyst material may be deposited on the filters and when used in the treatment of internal combustion engine exhaust gases, the catalyst material is preferably also effective for the conversion of hydrocarbons, carbon monoxide and/or nitrogen oxide pollutants. Such catalyst materials include a noble metal, an element of the first transition series, and mixtures thereof. The noble metals are gold, silver and the platinum group metals (note column 3, lines 37 and 56-66) with platinum group metal being preferred (note paragraph bridging columns 3-4). For the amount of catalytic material on the filters, Ernest '441 fairly teaches, in the examples, that the loading of platinum and palladium in the coarse filter is different than that in the fine filter (note Table II). Table II also teaches that the same catalytic material is used for both filters.

Ernest ‘441 can further be applied to teach that filters, i.e. substrates, can be ceramic monoliths, metal wools or metal meshes. An open cell filter structure having a plurality of interconnected voids is especially preferred (note column 2, lines 15), thus, Ernest ‘441 fairly teaches that foam structure is desirable. Also, Ernest '441 teaches that if a substrate area higher than that of the filter is desired, the catalyst material may be supported on a porous, refractory inorganic oxide. These oxides have a high total pore volume and surface area (note column 4, lines 31-41).

Ernest ‘441 further teaches that the coarse filter is located upstream in the flow of the gases through the composition and the fine filter is located downstream from the coarse filter in the flow of gases through the composition. The fine filter has a greater number of cells per unit length and a smaller cell size than the coarse filter. The respective pore sizes and permeabilities may vary in accordance with the particular nature of the gas under treatment (note column 3, lines 8-11). This fairly suggests to one of ordinary skill in the art as to how to decide where to position the catalyst composition based on the number of cells per unit length and the nature of the gas under treatment and the "coarse" filter (upstream catalyst) cannot be used interchangeably with the “fine” filter (downstream catalyst).

Optionally JP ‘824 can be applied to teach the shape of the catalyst as stated in the above rejection and to teach that exhaust purifying apparatus for internal combustion engine conventionally contains a front-stage (upstream) exhaust purifier and a rear-stage (downstream) exhaust purifier (note Figure 2 and paragraph [0020] in JP '824 or EP '211, column 4, lines 41-55). The upstream exhaust purifier is designed

differently than the downstream exhaust purifier (note Figures 3 and 5, paragraphs [0021] and [0023] in JP '824 or EP 211, paragraph bridging columns 4-5 and paragraph bridging columns 5-6). This fairly suggests to one skilled in the art to select a proper catalyst based upon the location of such catalyst in the exhaust purifying apparatus.

It would have obvious to one of ordinary skill in the art at the time the invention was made to use substrates with different densities and different catalytic loadings in the process of Gorynin '302, as suggested by Ernest '441 because the use of different densities would promote the removal of carbon and lead particles from internal combustion engine exhaust gases.

Claims 2, 6-11, 20-21, 36-39, 46-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ernest '441 in view of Ishida '281, optionally further in view of JP '824.

Ernest '441 is applied as stated above to teach a method for treating exhaust gas from an internal combustion engine (note claim 1). When used in the treatment of internal combustion engine exhaust gases, the catalyst material is preferably also effective for the conversion of hydrocarbons, carbon monoxide and/or nitrogen oxide pollutants (note column 3, lines 56-59).

Ernest '441 discloses that during use, the catalyst composition is typically disposed so that it occupies the major part of the cross-sectional area of a housing having a gas inlet and a gas outlet. The composition typically has the general shape of the housing and is positioned in the housing with the general direction of gas flow

between the inlet and outlet. The filters may be adhered together or spaced apart (note column 5, lines 42-50). Thus, Ernest '441 fairly teaches that the filters, which are served as carriers for the catalyst material, are "shaped" in order to have the "general shape" of the housing.

Optionally, JP '824 is applied as stated above to teach the shape of the catalyst and the upstream and downstream exhaust purifiers.

The difference is Ernest '441 does not disclose an anchor layer.

Ishida '281 discloses a process for producing a catalyst unit for NO_x reduction of exhaust gas, wherein molten metal is sprayed upon surfaces of a metal plate allowing the molten metal to accumulate thereon to form rough surfaces and rough surfaces thus obtained are deposited with a catalytic substance for NO_x reduction of exhaust gas. Forming the surfaces of the metal plate into rough surfaces is effected by molten metal spraying. In typical case, a metal wire is heated to be molten by contact resistance of electricity, an electric arc or high temperature flames, and molten metal thus obtained are sprayed together with gas such as compressed air through nozzles on the surfaces of the metal plate (note paragraph bridging columns 4-5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an anchor layer deposited by electric arc method, as suggested by Ishida '281, in the catalyst used in Ernest '441 because such anchor layer would prevent the catalytic substance from falling off, i.e. the anchor layer would promote bonding between the substrate and the catalytic substance.

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ernest ‘441 and Ishida ‘281, optionally further in view of JP ‘824 as applied to claims 2, 6-11, 36-39, 46-50 above, and further in view of Donomoto et al (4,798,770) or Draghi et al (6,042,879).

The difference not yet discussed is Ishida ‘281 does not disclose that the anchor layer comprises nickel and aluminum.

However, Ishida ‘281 teaches that the molten metal sprayed is preferred to be the same type of material as the metal plate (note column 5, lines 9-10) and the metal plate is desired to be heat resistant and corrosion resistant (note column 4, lines 53-64) such as stainless steel. It should be noted that the teaching of Ishida '281 should not be limited to just the exemplified metals.

Donomoto ‘770 discloses that alloys include Ni-Cr alloys, Ni-Al alloys containing 3-20% Al, Ni-Cr-Al alloys, Ni-Cr-Al-Y alloys are heat and corrosion resistant (note column 5, lines 51-63).

Alternatively, Draghi ‘879 teaches that MCrAlY, where M is nickel and/or cobalt, has corrosion and heat resistant properties (note column 4, lines 7-14). It would have been obvious to one skilled in the art to optimize the composition of the MCrAlY alloy to obtain the desired corrosion and heat resistant properties.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use any known metal alloy which has heat and corrosion resistant properties, such as the MCrAlY alloys as suggested by Donomoto '770 or

Draghi '879 for the metal carrier in Ishida '281 because such properties are desirable for the metal carrier.

Applicant's arguments filed September 22, 2008 have been fully considered but they are not persuasive.

Applicants argue that Applicants' claims require that the shape of the catalyst member has been changed by bending and/or compressing the catalyst member to conform to a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe without loss of catalytic material.

As stated in the above 112, first paragraph rejection, there is no support in Applicants' specification for such "longitudinal bend or curve", and any shaping action as disclosed in the paragraph bridging pages 17-18 of Applicants' specification is considered as "to conform to a longitudinal bend or curve", thus, the "corrugating" and "rolling" into a cylinder as disclosed in Gorynin '302 would meet the required "to conform to a longitudinal bend or curve".

Applicants argue that even when the cylinder is considered as having a "curve" because the cross-section of the cylinder is circular, the claim still requires the bend or curve be within an exhaust manifold or exhaust flow pipe, not the cross-section of the catalyst member.

In Applicants' claim 36, it is required that "the shape of the catalyst member has been changed" "to conform to a longitudinal bend or curve within an exhaust manifold or

exhaust flow pipe", however, there is no positive requirement for a curve or bent with an exhaust manifold or exhaust flow pipe.

Applicants urge that the Declaration by Michael P. Galligan, submitted on November 26, 2007, in the instant case, item 12 confirms that Gorynin does not teach or suggest that the rolled catalytic cylinder can be bent or compresses to conform to a longitudinal bend or curve within the exhaust manifold.

For the Declaration by Mr. Galligan for this instant application, this Declaration has been fully considered in the previous office action (note Final office action, mailed 02/27/2008). There is no evidence in the Declaration to show that the corrugated, rolled catalytic cylinder as disclosed in Gorynin cannot be bent to conform to a longitudinal bend or curve within an exhaust manifold because such actions are the same or very similar to the actions disclosed in the paragraph bridging columns 17-18.

Applicants argue that there is nothing in the cited references that would have suggested to one of skill in the art the desirability of conforming the catalyst member to longitudinal bend or curve within an exhaust manifold or exhaust flow pipe.

As stated in the above rejection, JP '824 can be applied to teach that that the catalysts are positioned in the curve portions of the exhaust pipes (note Figures 16 A-B) or the catalyst shape is conformed to the shape of the exhaust pipe (note Figures 17-18).

Applicants argue that Exhibit A of the '195 Galligan Declaration shows that the ability to conform to the bends in an exhaust pipe allows more rapid lightoff and improved catalytic oxidation.

As addressed in the previous Office action, the Declaration compares a flex tube with a rigid tube, however, it is unclear how the rigid tube was formed, there is no evidence on record to show that the rigid tube as used in the Declaration is the same or similar to the catalyst disclosed in Gorynin '302, thus, Applicants' argument and the Declaration are fully considered but they are not persuasive because the claimed invention was not compared to the closest prior art, which is Gorynin '302 on 716.02(b) of the MPEP states that "evidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the closest prior art which is commensurate in scope with the claims. See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and MPEP §716.02(d) - § 716.02(e). See In re Blondel, 499 F.2d 1311, 1317, 182 USPQ 294, 298 (CCPA 1974) and In re Fouche, 439 F.2d 1237, 1241-42, 169 USPQ 429, 433 (CCPA 1971) for examples of cases where indirect comparative testing was found sufficient to rebut a prima facie case of obviousness. It should be noted again that the catalyst as disclosed in Gorynin '302 can be corrugated and rolled into a cylinder, thus, it is considered as "conformable" and "reshaped" as required in Applicants' claims.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicants argue that Figures 16A and B of EP '211 (i.e. JP '824) do not suggest to one skilled in the art that exhaust purifier 50 can be shaped to fit into a bend portion of an exhaust pipe, as pointed out in the '658 Galligan Declaration.

The '658 Galligan Declaration is noted, however, the exhaust purifier "50" in Figures 16A and 16B may have the same components as "50" in Figure 12, but Figure 16B clearly suggests to one skilled in the art that "50" can be shaped to fit into a bent of an exhaust pipe and the "chamber" that holds the catalyst is conventionally in the shape of a pipe with curve or bend when the catalyst is used to treat an exhaust gas from an internal combustion engine. Furthermore, JP '824 discloses that it is known and conventional in the art to form the catalyst containing porous sheet (inner pipe) and the exhaust pipe in concentric cylinders (note Figures 17-18) when the exhaust purifying apparatus is for a small size internal combustion engine mounted on a motor bicycle or the like.

The remaining rejections are maintained for the same reasons as stated above.

Applicants argue that all of the tested catalyst members mentioned in the Declaration were preparing using "Englehard's MC20B technology..."

In the Declaration, the method of depositing the catalyst layer (including the washcoat) may have been described, however, it is unclear what is used as the carrier, i.e. substrate to render one tube being "flex-tube" while the other is "rigid tube".

Applicants argue that whether the catalyst strip in Gorynin can be corrugated and rolled is irrelevant because the instant claims require that the bend or curve be within an exhaust manifold or exhaust flow pipe.

As stated above, the limitation of “wherein the shape of the catalyst member has been changed by bending and/or compressing the catalyst member to conform to a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe” is considered as shaping the catalyst so that it can conform to a longitudinal bend or curve but the curve or bend is not positively required. However, in the event that the bend or curve is positively required, JP '824 is applied to teach the shape of the catalyst as stated in the above rejection. Furthermore, there is no sufficient support in the instant specification for the "longitudinal bend or curve" as now required.

Applicants argue that nothing in Gorynin teaches or suggests that the rolled catalytic cylinder can be bent or compressed to conform to a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe without loss of catalytic material.

The catalyst as disclosed in Gorynin '302 was formed by similar methods as disclosed in Applicants' specification, i.e. it can be corrugated, it can be rolled, which fairly teaches that the catalyst is malleable, thus, it would be as capable of being bent or compressed as the claimed catalyst. Applicants have not provided any evidence to show otherwise.

Applicants argue that FlexTube catalyst made in accordance with the claimed invention and placed within a curved portion of an exhaust pipe was compared to the closest prior art, namely a rigid tube placed in a straight portion of an exhaust pipe.

Again, the art applied in the above rejection is a catalyst that can be shaped, i.e. corrugated, rolled into a cylinder, as disclosed in Gorynin '302, not a rigid tube, and there is no evidence to show that the rigid tube is the same or similar to the catalyst disclosed in Gorynin '302, the closest prior art is Gorynin '302, not the rigid tube as alleged by Applicants.

Applicants argue that the claims recite that "the shape of the catalyst member has been changed by bending and/or compressing the catalyst member to conform to a longitudinal bend or curve", and this clearly conveys to one skilled in the art that the bend or compressed catalyst member resides in the bend or curved portion of the exhaust manifold or exhaust flow pipe, a structural limitation, which is not taught or suggested by the cited references.

For the "conform" limitation, the catalyst can be produced in the final shape without being changed to conform to a longitudinal bend or curve. If the bend or curve is positively required, JP '824 is applied as stated above to show that the shape of the catalyst can be "conformed" to the shape of the exhaust pipe (note Figures 16A-16B, 17-18).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner can normally be reached on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ngoc-Yen M. Nguyen/
Primary Examiner, Art Unit 1793

nmn
January 5, 2009